

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	)	
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Islam et al.	)	Art Unit: 2631
	)	
Serial No.: 10/693,346	)	Examiner: Alam
	)	
Filing Date: 10/24/2003	)	Docket No.: 555255012610
	)	

For: *"METHODS AND APPARATUS FOR SELECTING A BASE STATION  
TRANSCIVER SYSTEM BASED ON SERVICE COMMUNICATION TYPE"*

Commissioner for Patents  
P.O. BOX 1450  
Alexandria, VA 22313-1450

AMENDMENT AND REQUEST FOR RECONSIDERATION

The Applicant respectfully submits this Amendment And Request For Reconsideration in response to the Office Action mailed on 20 February 2007 for the above-identified patent application.

## IN THE CLAIMS

*Please amend claims 1-7, 11-18, 22-30, and 35-39, as follows:*

1. (Currently Amended) In a mobile station, a method of selecting a cellular base station transceiver system for communication with the mobile station comprising:

scanning to identify one or more cellular base station transceiver systems for communication with a the mobile station;

identifying, at the mobile station, that a first cellular base station transceiver system identified from the scanning provides a Third Generation (3G) or greater communication service;

identifying, at the mobile station, that a second cellular base station transceiver system identified from the scanning fails to provide the 3G or greater communication service but provides a communication service that is less than the 3G or greater communication service;

if, as identified at the mobile station, the first cellular base station transceiver system has a signal quality that is greater than a minimum threshold, even if the signal quality is less than that of the second cellular base station transceiver system:

causing the first cellular base station transceiver system to be selected for communication over the second cellular base station transceiver system based at least in part on identifying that the first cellular base station transceiver system provides the 3G or greater communication service and the second cellular base station transceiver system fails to provide the 3G or greater communication service.

2. (Currently Amended) The method of claim 1, wherein the second cellular base station transceiver system provides a Second Generation (2G) communication service.

3. (Currently Amended) The method of claim 1, wherein the act of causing the first cellular base station transceiver system to be selected for communication further comprises:

causing the first cellular base station transceiver system to be selected for communication over the second cellular base station transceiver system if the first cellular base station transceiver system has the signal quality that is better than the minimum threshold and is worse than that of the second cellular base station transceiver system.

4. (Currently Amended) The method of claim 1, wherein the method is performed at least in part by the mobile station and further comprises:

initially establishing communication with the second cellular base station transceiver system; and

wherein the act of causing the first cellular base station transceiver system to be selected for communication comprises the further act of facilitating a handoff to the first cellular base station transceiver system if the signal quality of the first cellular base station transceiver system is better than the minimum threshold, even if the signal quality is worse than that of the second cellular base station transceiver system.

5. (Currently Amended) The method of claim 1, wherein the method is performed at least in part by the mobile station and further comprises:

initially establishing communication with the first cellular base station transceiver system which provides the 3G or greater communication service; and

wherein the act of causing the first cellular base station transceiver system to be selected for communication comprises the further act of refraining from handing-off to the second cellular base station transceiver system if the signal quality of the first cellular base station transceiver system is better than the minimum threshold, even if the signal quality is worse than that of the second cellular base station transceiver system.

6. (Currently Amended) The method of claim 1, wherein the method is performed at least in part by the mobile station, and further comprises:

wherein the act of causing the first cellular base station transceiver system to be selected for communication comprises the further acts of producing and sending a list of one or more handoff candidate identifiers to a serving cellular base station transceiver system which excludes an identifier for the second cellular base station transceiver system.

7. (Currently Amended) A method of selecting a cellular base station transceiver system for communication, comprising:

scanning to identify one or more cellular base station transceiver systems for communication with a mobile station;

identifying, at the mobile station, that at least a first cellular base station transceiver system identified from the scanning provides a predetermined digital communication service for the mobile station;

identifying, at the mobile station, that at least a second cellular base station transceiver system identified from the scanning fails to provide the predetermined digital communication service for the mobile station; and

producing and sending a list of handoff candidate identifiers to a serving cellular base station transceiver system which includes a first identifier for the first cellular base station transceiver system but excludes a second identifier for the second cellular base station transceiver system based on identifying that it fails to provide the predetermined digital communication service.

8. (Original) The method of claim 7, wherein the predetermined digital communication service comprises a Third Generation (3G) communication service or better.

9. (Original) The method of claim 7, wherein the predetermined digital communication service comprises a Second Generation (2G) communication service.

10. (Original) The method of claim 7, wherein the list is sent as part of one of an origination message, a page response message, and a pilot strength measurement message.

11. (Currently Amended) A mobile station, comprising:  
a controller;  
cellular radio frequency (RF) transceiver circuitry coupled to the controller;  
the cellular RF transceiver circuitry including a receiver and a transmitter;  
the mobile station using the controller and the cellular RF transceiver circuitry for use in selecting a cellular base station transceiver system for communication by:

scanning to identify one or more cellular base station transceiver systems for communication;

identifying that a first cellular base station transceiver system identified from the scanning provides a Third Generation (3G) or greater communication service;

identifying that a second cellular base station transceiver system identified from the scanning fails to provide the 3G or greater communication service but provides a communication service that is less than the 3G or greater communication service; and

if, as identified at the mobile station, a signal quality associated with the first cellular base station transceiver system is greater than a minimum threshold, even if the signal quality is less than that of the second cellular base station transceiver system: causing the first cellular base station transceiver system to be selected for communication over the second cellular base station transceiver system based at least in part on identifying that the first cellular base station transceiver system provides the 3G or greater communication service and the

second cellular base station transceiver system fails to provide the 3G or greater communication service.

12. (Currently Amended) The mobile station of claim 11, wherein the second cellular base station transceiver system provides a Second Generation (2G) communication service.

13. (Currently Amended) The mobile station of claim 11, wherein the mobile station uses the controller and the cellular RF transceiver circuitry further for selecting the first cellular base station transceiver system for communication over the second cellular base station transceiver system if the first cellular base station transceiver system has the signal quality that is better than the minimum threshold and is worse than that of the second cellular base station transceiver system.

14. (Currently Amended) The mobile station of claim 11, wherein the mobile station uses the controller and the cellular RF transceiver circuitry further for:

initially establishing communication with the second cellular base station transceiver system; and

facilitating a handoff to the first cellular base station transceiver system if the signal quality of the first cellular base station transceiver system is better than the minimum threshold, even if the signal quality is worse than that of the second cellular base station transceiver system.

15. (Currently Amended) The mobile station of claim 11, wherein the mobile station uses the controller and the cellular RF transceiver circuitry further for:

initially establishing communication with the first cellular base station transceiver system which provides the predetermined communication service; and

refraining from handing-off to the second cellular base station transceiver system if the signal quality of the first cellular base station transceiver system is better than the

minimum threshold, even if the signal quality is worse than that of the second cellular base station transceiver system.

16. (Currently Amended) The mobile station of claim 11, wherein the mobile station uses the controller and the cellular RF transceiver circuitry further for:

producing and sending a list of one or more handoff candidate identifiers to a serving cellular base station transceiver system which excludes an identifier for the second cellular base station transceiver system, for causing the first cellular base station transceiver system to be selected for communication.

17. (Currently Amended) The mobile station of claim 11, which operates in accordance with Code Division Multiple Access (CDMA) for both the first and the second cellular base station transceiver systems.

18. (Currently Amended) A mobile station, comprising:  
a controller;  
cellular radio frequency (RF) transceiver circuitry coupled to the controller;  
the cellular RF transceiver circuitry including a receiver and a transmitter;  
the mobile station using the controller and the cellular RF transceiver circuitry to select a cellular base station transceiver system for communication by:

scanning to identify one or more cellular base station transceiver systems for communication;

identify that at least a first cellular base station transceiver system identified from the scanning provides a predetermined digital communication service for the mobile station;

identifying that at least a second cellular base station transceiver system identified from the scanning fails to provide the predetermined digital communication service for the mobile station; and

producing and sending a list of one or more handoff candidate identifiers to a serving cellular base station transceiver system which includes a first identifier for the first cellular base station transceiver system but excludes a second identifier for the second cellular base station transceiver system based on identifying that it fails to provide the predetermined digital communication service for the mobile station.

19. (Original) The mobile station of claim 18, wherein the predetermined digital communication service comprises a Third Generation (3G) communication service or better.

20. (Original) The mobile station of claim 18, wherein the predetermined digital communication service comprises a Second Generation (2G) communication service.

21. (Original) The mobile station of claim 18, wherein the list is sent as part of one of an origination message, a page response message, and a pilot strength measurement message.

22. (Currently Amended) The mobile station of claim 18, which operates in accordance with Code Division Multiple Access (CDMA) for both the first and the second cellular base station transceiver systems.

23. (Currently Amended) A wireless communication system, comprising:  
a first ~~wireless~~ cellular network associated with a first cellular base station transceiver system;  
a second ~~wireless~~ cellular network associated with a second cellular base station transceiver system;  
a mobile station including:



a controller;  
cellular radio frequency (RF) transceiver circuitry coupled to the controller;  
the cellular RF transceiver circuitry including a receiver and a transmitter;  
the mobile station using the controller and the cellular RF transceiver circuitry to select a cellular base station transceiver system for communication by:  
    scanning to identify one or more cellular base station transceiver systems for communication including the first and the second cellular base station transceiver systems;  
    identifying that the first cellular base station transceiver system provides a Third Generation (3G) or greater communication service;  
    identifying that the second cellular base station transceiver system fails to provide the Third Generation (3G) or greater communication service but provides a communication service that is less than the 3G or greater communication service; and  
    if, as identified at the mobile station, the first cellular base station transceiver system has a signal quality that is greater than a minimum threshold, even if the signal quality is less than that of the second cellular base station transceiver system: causing the first cellular base station transceiver system to be selected for communication over the second cellular base station transceiver system based at least in part on identifying that the first cellular base station transceiver system provides the 3G or greater communication service and the second cellular base station transceiver system fails to provide the 3G or greater communication service.

24. (Currently Amended) The wireless communication system of claim 23, wherein the second cellular base station transceiver system provides a Second Generation (2G) communication service .

25. (Currently Amended) The wireless communication system of claim 23, wherein the mobile station uses the controller and the cellular RF transceiver circuitry further for selecting the first cellular base station transceiver system for communication over the second cellular base station transceiver system if the first cellular base station transceiver system has the signal quality that is better than the minimum threshold and the signal quality is worse than that of the second cellular base station transceiver system.

26. (Currently Amended) The wireless communication system of claim 23, wherein the mobile station uses the controller and the cellular RF transceiver circuitry further for:

initially establishing communication with the second cellular base station transceiver system; and

facilitating a handoff to the first cellular base station transceiver system if the signal quality of the first cellular base station transceiver system is better than the minimum threshold, even if the signal quality is worse than that of the second cellular base station transceiver system.

27. (Currently Amended) The wireless communication system of claim 23, wherein the mobile station uses the controller and the cellular RF transceiver circuitry further for:

initially establishing communication with the first cellular base station transceiver system which provides the predetermined communication service; and

refraining from handing-off to the second cellular base station transceiver system if the signal quality of the first cellular base station transceiver system is better than the minimum threshold, even if the signal quality is worse than that of the second cellular base station transceiver system.

28. (Currently Amended) The wireless communication system of claim 23, wherein the mobile station uses the controller and the cellular RF transceiver circuitry further for:

producing and sending a list of one or more handoff candidate identifiers to a serving cellular base station transceiver system which excludes an identifier for the second cellular base station transceiver system, for causing the first cellular base station transceiver system to be selected for communication.

29. (Currently Amended) The wireless communication system of claim 23, wherein the first and the second cellular base station transceiver systems are compatible with Code Division Multiple Access (CDMA).

30. (Currently Amended) A wireless communication system, comprising:  
one or more cellular base station transceiver systems associated with one or more ~~wireless~~ cellular communication networks;

a mobile station including:

a controller;

cellular radio frequency (RF) transceiver circuitry coupled to the controller;

the cellular RF transceiver circuitry including a receiver and a transmitter;

the mobile station using the controller and the cellular RF transceiver circuitry to select a cellular base station transceiver system for communication by:

scanning to identify the one or more cellular base station transceiver systems for communication which include at least first and second cellular base station transceiver systems;

identifying that the first cellular base station transceiver system provides a predetermined digital communication service for the mobile station;

identifying that the second cellular base station transceiver system fails to provide the predetermined digital communication service for the mobile station; and

producing and sending a list of handoff candidate identifiers to a serving cellular base station transceiver system which includes a first identifier for the first cellular base station transceiver system but excludes a second identifier for the second cellular base station transceiver system based on identifying that it fails to provide the predetermined digital communication service.

31. (Original) The wireless communication system of claim 30, wherein the predetermined digital communication service comprises a Third Generation (3G) communication service or better.

32. (Original) The wireless communication system of claim 30, wherein the predetermined digital communication service comprises a Second Generation (2G) communication service.

33. (Original) The wireless communication system of claim 30, wherein the list is sent as part of one of an origination message, a page response message, and a pilot strength measurement message.

34. (Original) The wireless communication system of claim 30, which is compatible with Code Division Multiple Access (CDMA).

35. (Currently Amended) The wireless communication system of claim 30, wherein the serving cellular base station transceiver system utilizes the list of handoff candidate identifiers to select one of the cellular base station transceiver systems for communication with the mobile station.

36. (Currently Amended) The method of claim 1, wherein the first cellular base station transceiver system is associated with a first wide area wireless network and the second cellular base station transceiver is associated with a second wide area wireless network.

37. (Currently Amended) The method of claim 1, wherein the first cellular base station transceiver is associated with a first System Identification (SID) and the second cellular base station transceiver is associated with a second SID.

38. (Currently Amended) The mobile station of claim 18, wherein the first cellular base station transceiver system is associated with a first wide area wireless network and the second cellular base station transceiver is associated with a second wide area wireless network.

39. (Currently Amended) The mobile station of claim 18, wherein the first cellular base station transceiver is associated with a first System Identification (SID) and the second cellular base station transceiver is associated with a second SID.

## REMARKS

This Amendment and Request for Reconsideration is filed in response to the Final Office Action mailed on 20 February 2007 for the subject patent application.

Prior to the submission of this Amendment, the application included claims 1-39 that were rejected by the Examiner in the Final Office Action of 20 February 2007. In the present Amendment, the Applicants amend claims 1-7, 11-18, 22-30, and 35-39; no claims have been added or canceled. The Applicants respectfully submit that no new matter has been added by this Amendment; the subject matter claimed is fully supported in the present application as originally filed. The Applicants respectfully request entry of this Amendment and reconsideration of the claims as amended.

*In the Final Office Action mailed on 20 February 2007 for the present application, the Examiner rejected claims of the application under 35 U.S.C. § 103 based on Feder et al. (U.S. Patent Application Publication 2004/0142693), Einola et al. (International Publication WO 01/22764 A1), Kingdon et al. (U.S. Patent No. 6,047,183), and Pecan et al. (U.S. Patent Application Publication 2004/0097233). In response, the Applicants respectfully disagree with the rejection of the claims and submit that all claims as amended are allowable over the prior art of record for at least the following reasons.*

For proper rejection of claims under 35 U.S.C. § 103, the prior art in combination must teach or suggest each and every limitation of the claims. In addition, there must be some adequate suggestion or motivation to combine the teachings of the prior art.

Regarding Claims 1-6, 11-17, 23-29, and 36-37. The prior art in combination fails to teach or suggest each and every step recited in the claims 1-6, 11-17, and 23-29 as amended, and there is no adequate suggestion or motivation to modify the selection technique of Feder et al. to include a “2G” network in its decision-making process.

Specifically with respect to claims 1-6, 11-17, and 23-29, the prior art in combination fails to teach, suggest, or render obvious the steps of “identifying, at the mobile station, that a first cellular base station transceiver system identified from the scanning provides a Third Generation (3G) or greater communication service” and “identifying, at the mobile station, that a second cellular base station transceiver system identified from the scanning fails to provide the 3G or greater communication service but provides a communication service that is less than the 3G or greater communication service” such as “a Second Generation (2G) communication service,” and then subsequently cause “the first cellular base station transceiver system to be selected for communication over the second cellular base station transceiver system based at least in part on identifying that the first cellular base station transceiver system provides the 3G or greater communication service and the second cellular base station transceiver system fails to provide the 3G or greater communication service.”

The Feder et al. reference is directed specifically to selection between heterogeneous wireless networks – specifically, between Third Generation (3G), 802.11 Wireless Local Area Network (WLAN), and Wireless Personal Area Network (PAN) systems. At the time of Feder et al., standards for selecting between heterogeneous wireless networks were not well-defined. This void left some opportunity for devising new selection techniques based on various preferences and desires of the user, some of which are described in the Feder et al. reference.

On the other hand, standards for cellular network selection for cellular networks have already been well-defined and documented in cellular standards and specifications. This environment is the background and context of the present invention as defined in claims 1-6, 11-17, and 23-29. As is well-known, conventional techniques for handing-off between cellular base station cells have been *based on signal strength*. For example, see paragraph 45 on page 5 of the present application as published:

...the mobile station will consider conventional handoff techniques (step 338 through a connector A1). When conventional handoff techniques are

considered at step 338, the mobile station facilitates a handoff to the candidate system if its signal quality is stronger than the signal quality of the current system. Conversely, if the signal quality of the candidate system is not better than that of the current system, then a handoff to the candidate system is not initiated and communication is maintained with the current system. In the present embodiment, the signal quality of the candidate system is better or greater than that of the current system if the candidate's system is at least 2 dB greater than that of the current system.

The techniques of the present invention run contrary to the standards for cellular network selection. Techniques of the present invention may be distinguished from conventional handoff techniques for cellular networks in that they “[identify], at the mobile station, that a first cellular base station transceiver system identified from the scanning provides a Third Generation (3G) or greater communication service” and “[identify], at the mobile station, that a second cellular base station transceiver system identified from the scanning fails to provide the 3G or greater communication service but provides a communication service that is” e.g. “a Second Generation (2G) communication service,” and then subsequently cause “the first cellular base station transceiver system to be selected for communication over the second cellular base station transceiver system based at least in part on identifying that the first cellular base station transceiver system provides the 3G or greater communication service and the second cellular base station transceiver system fails to provide the 3G or greater communication service” ... “even if the signal quality [of the first cellular base station transceiver system] is less than that of the second cellular base station transceiver system.”

Again, the Feder et al. reference is directed specifically to selection between *heterogeneous* systems – Third Generation (3G), 802.11 Wireless Local Area Network (WLAN), and Wireless Personal Area Network (PAN) systems. As stated in the Feder et al. reference in paragraph 19: “[t]he systems detected by the mobile station may include systems of a type, which is different than, and disparate (i.e., not compatible) with respect to, the system current serving the mobile station.” The Feder et al. reference does not even address a cellular network that provides a communication service that is less than a



3G communication service such as a Second Generation (2G) communication service. The Feder et al. reference is *not* directed to selection or handoffs between cellular networks which provide either 2G or 3G communication services as is the present application. The teachings of the Feder et al. reference are primarily directed to “a method for a mobile client to choose amongst wireless and wireline service providers” as stated in the background of the invention in paragraph 1 of the reference. Clearly, there is no adequate suggestion or motivation for modifying the teachings of Feder et al.

In addition, the Einola reference, which is used in combination with the Feder et al. reference, teaches network-based (not mobile-based) selection techniques between wireless networks. In the Feder et al. reference, the mobile station makes decisions regarding the selection of systems. These are two separate and distinct approaches.

Based on all of the above, there would be no adequate suggestion or motivation to modify the Feder et al. reference to obtain the claimed techniques.

Thus, the Applicants respectfully request the Examiner to withdraw all rejections for claims 1-6, 11-17, 23-29, and 36-37 as amended.

Regarding Claims 7-10, 18-22, 30-35, and 38-39. The prior art in combination fails to teach, suggest, and render obvious the other claims as well. With respect to claims 7-10, 18-22, 30-35, and 38-39, the prior art in combination fails to teach or suggest the steps of “identifying, at the mobile station, that at least a first cellular base station transceiver system identified from the scanning provides a predetermined digital communication service for the mobile station” and “identifying, at the mobile station, that at least a second cellular base station transceiver system identified from the scanning fails to provide the predetermined digital communication service for the mobile station” so that the mobile station can “[produce] and [send] a list of handoff candidate identifiers to a serving cellular base station transceiver system which includes a first identifier for the first cellular base station transceiver system but excludes a second identifier for the second cellular base station transceiver system based on identifying that it fails to provide the predetermined digital communication service.”

Reasons provided above regarding the allowability of claims 1-6, 11-17, 23-29, and 36-37 also apply to claims 7-10, 18-22, 30-35, and 38-39, where applicable. In addition, the Kingdon et al reference does not teach or suggest a message that includes a first identifier for the first cellular base station transceiver system but excludes a second identifier for the second cellular base station transceiver system based on identifying that it fails to provide the predetermined digital communication service. Neither does the Feder et al. reference. Again, the mobile station of the present invention is operative to exclude the second identifier for the second base station transceiver system based on identifying that it fails to provide the predetermined digital communication service. Advantageously, according to the present invention as defined by claims 7-10, 18-22, 30-35, and 38-39, the *mobile station* is adapted to provide such unique control and selection without any significant changes required in the networks. Based on all of the above, there would be no adequate suggestion or motivation to modify the Feder et al. reference to obtain the claimed techniques.

Thus the Applicants respectfully request the Examiner to withdraw all pending rejections for claims 7-10, 18-22, 30-35, and 38-39.

Based on all of the above, the Applicants respectfully submit that all claims as amended are allowable over the prior art of record, and the application is now in a condition suitable for allowance. The Applicants respectfully request entry of this Amendment, reconsideration of the claims as amended in light of the above arguments, and allowance of the application at the earliest opportunity.

Thank you. The Examiner is invited to contact the undersigned if necessary to expedite prosecution of the present application.

Date: 17 May 2007

Respectfully Submitted,

/John J. Oskorep/

JOHN J. OSKOREP

Reg. No. 41,234

*JOHN J. OSKOREP, ESQ. LLC  
ONE MAGNIFICENT MILE CENTER  
980 N. MICHIGAN AVENUE, SUITE 1400  
CHICAGO, ILLINOIS 60611 USA*

*Telephone: (312) 222-1860 Fax: (312) 475-1850*